

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1. (Currently Amended) A radiation-curable urethane (meth)acrylate obtained by a process, comprising:

a) partly reacting an alkoxyated polyol (A) with (meth)acrylic acid (B) in the presence of at least one esterification catalyst (C) and at least one polymerization inhibitor (D) and, optionally, a solvent (E) that forms an azeotrope with water until at least 75 % of the water product from the esterification reaction has been released;

b) during or after step (a), optionally removing at least some of the water formed in a) from the reaction mixture;

f) optionally neutralizing the reaction mixture;

h) optionally removing any solvent (E) by distillation; and/or

i) optionally stripping the treated reaction mixture with a gas which is inert under the reaction conditions and optionally removing excess acrylic acid by distillation;

k) reacting the reaction mixture obtained after step i) with a compound (G) containing at least two epoxy groups, optionally in the presence of a catalyst (H); and

l) reacting the reaction mixture from step (k) with at least one polyisocyanate compound (J) and at least one hydroxyalkyl(meth)acrylate (K) and, optionally with at least one further compound (M) comprising one or more isocyanate-reactive groups, optionally in the presence of a catalyst (L).

Claim 2. (Canceled)

Claim 3. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in Claim 1, wherein the reaction mixture in step (k) has an acid number to DIN EN 3682 of up to 200 mg KOH/g and an OH number to DIN 53240 of up to 120 mg KOH/g.

Claim 4. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the reaction mixture in step (l) has an OH number to DIN 53240 of up to 250 mg KOH/g.

Claim 5. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the alkoxyated polyol (A) is a pentaerythritol, trimethylolethane or trimethylolpropane having from single to 20-fold ethoxylation.

Claim 6. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the epoxide compound (G) is bisphenol A diglycidyl ether, 1,4-butanediol diglycidyl ether, trimethylolpropane triglycidyl ether or pentaerythritol tetraglycidyl ether.

Claim 7. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the polyisocyanate (J) is 2,4- or 2,6-tolylene diisocyanate or an isomer mixture thereof, hexamethylene diisocyanate, 1,3-bis(isocyanatomethyl)cyclohexane, isophorone diisocyanate or di(isocyanatocyclohexyl)methane.

Claim 8. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the hydroxyalkyl (meth)acrylate (K) is 2-hydroxyethyl acrylate or 2-hydroxyethyl methacrylate.

Claims 9 and 10 (Canceled)

Claim 11. (Currently Amended) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the alkoxyated polyol (A) with (meth)acrylic acid (B) are combined in an (A)/(B) molar ratio of ~~1: 0.8 — 2~~ 1: 0.75 — 2.5.

Claim 12. (Currently Amended) The radiation-curable urethane (meth)acrylate as claimed in Claim 11, wherein the (A)/(B) molar ratio ranges from ~~1: 0.75 — 2.5~~ 1: 0.8 — 2.

Claim 13. (Currently Amended) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the fluid medium upon esterification of the alkoxyated polyol with (meth)acrylic acid consists essentially of ~~20 to 80 % by weight of~~ fully esterified alkoxyated polyol (A) ~~[[,]] and from 20 to 50 % by weight of unesterified or partly esterified~~ alkoxyated polyol (A) in a weight ratio of 20 to 80:50 to 20, and, based on the total amount of fully esterified alkoxyated polyol, partly esterified alkoxyated polyol and unesterified alkoxyated polyol as 100 %, the fluid medium additionally contains from 0.001 % up to 25 % by weight of unreacted (meth)acrylic acid (B), from 0.1 to 5 % by weight of esterification catalyst (C), and from 0.01 to 1 % by weight of polymerization inhibitor (D), and optionally solvent (E)~~[[,]] the total of the ingredients being 100 % by weight.~~

Claim 14. (Currently Amended) A process for preparing a radiation-curable urethane (meth)acrylate, comprising:

a) partly reacting an alkoxyated polyol (A) with (meth)acrylic acid (B) in the presence of at least one esterification catalyst (C) and at least one polymerization inhibitor (D) and, optionally, a solvent (E) that forms an azeotrope with water until at least 75 % of the water product from the esterification reaction has been released;

b) during and after step (a), optionally removing at least some of the water in the reaction mixture;

f) optionally neutralizing the reaction mixture;

h) optionally removing any solvent (E) by distillation; and/or

i) optionally stripping with the treated reaction mixture with a gas which is inert under the reaction conditions and removing excess acrylic acid by distillation.

k) reacting the reaction mixture with a compound (G) containing at least two epoxy groups, optionally in the presence of a catalyst (H); and

l) reacting the reaction mixture from step (k) with at least one polyisocyanate compound (J) and at least one hydroxyalkyl(meth)acrylate (K) and, optionally with at least one further compound (M) comprising one or more isocyanate-reactive groups, optionally in the presence of a catalyst (L).

Claim 15. (Previously Presented) A radiation-curable coating composition comprising the radiation-curable urethane (meth)acrylate as claimed in claim 1.

Claim 16. (Previously Presented) An interior wood-coating material comprising the radiation-curable coating composition as claimed in claim 15.